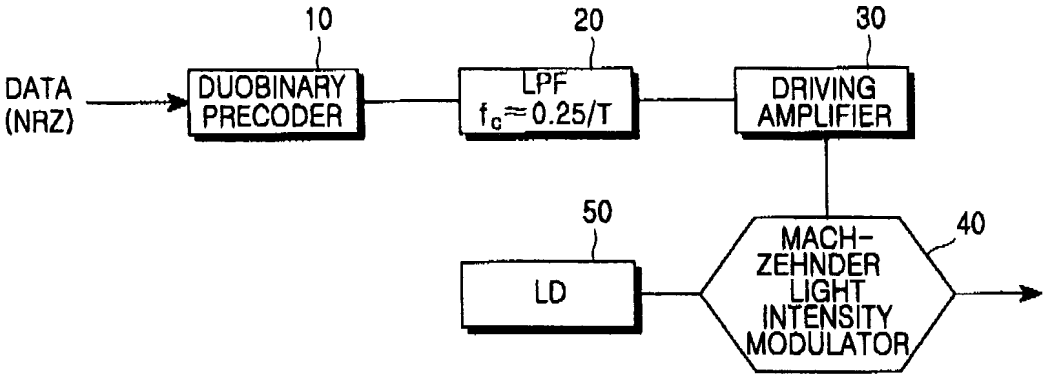


FIG. 1
(PRIOR ART)

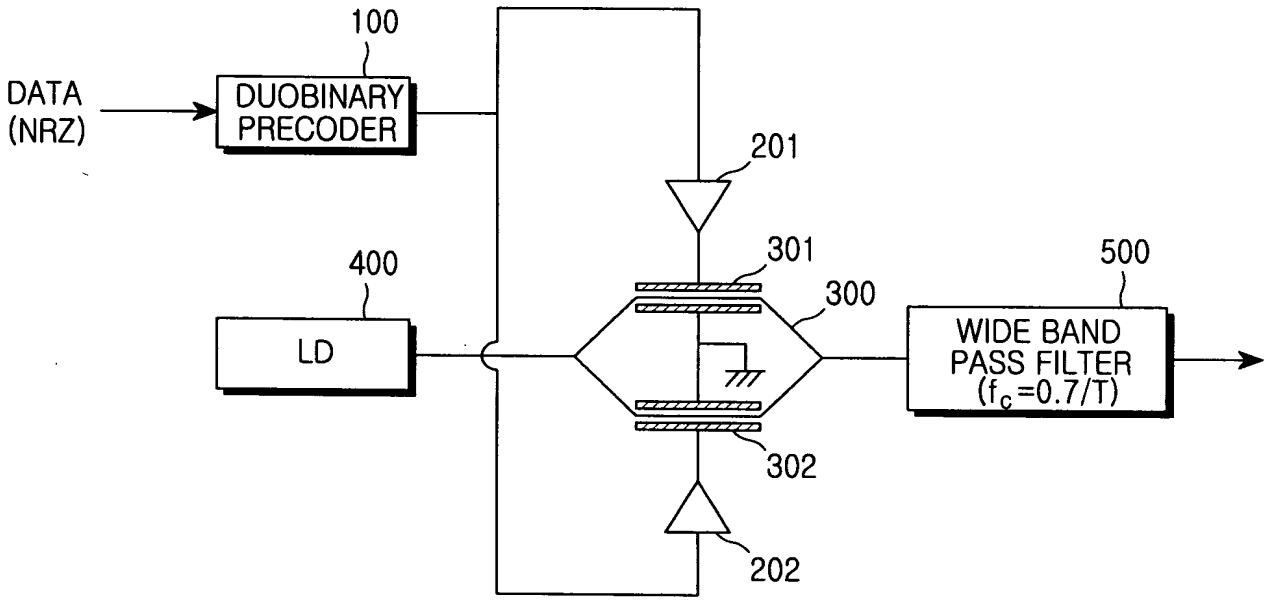
100
DATA
(NRZ)
DUOBINARY
PRECODER
201
301
400
300
500
LD
WIDE BAND
PASS FILTER
($f_c$=0.7/T)
302
202

FIG.2

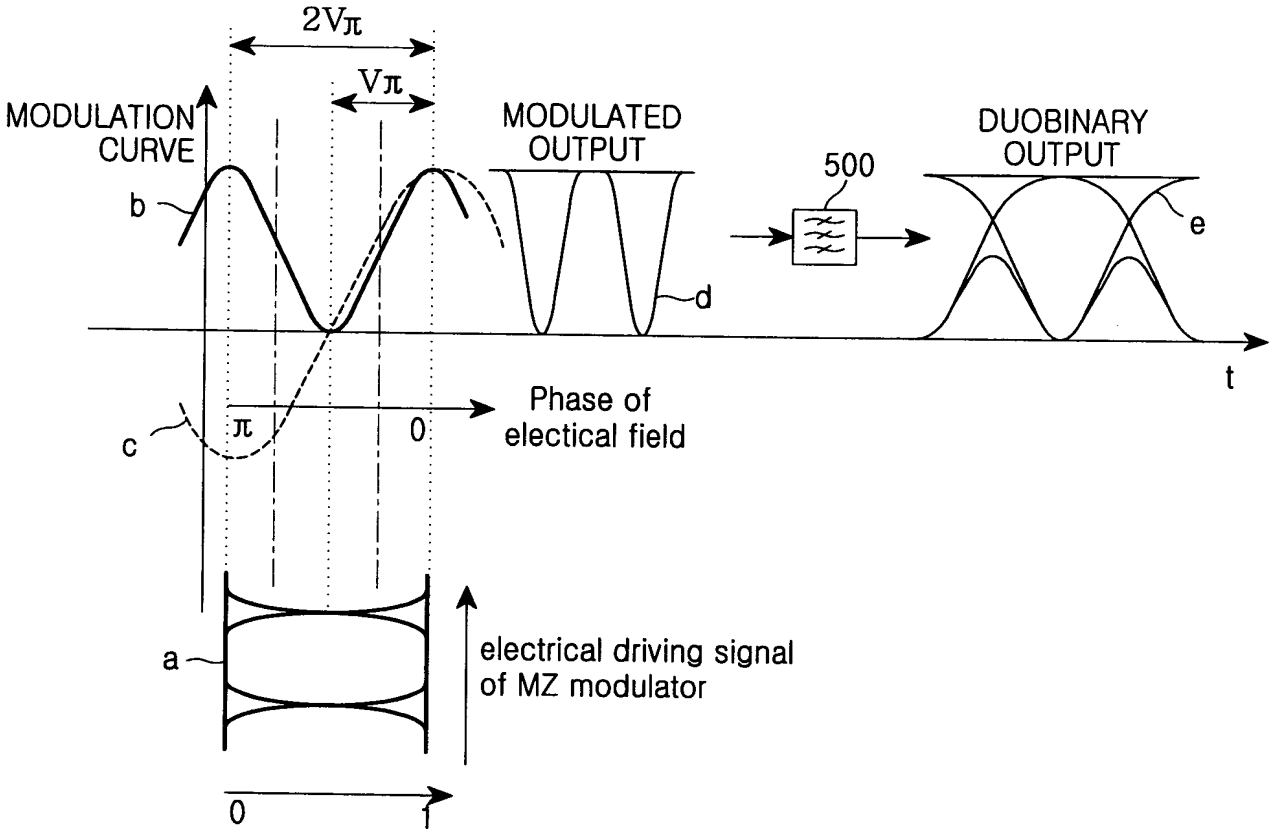
2Vπ
Vπ
MODULATION CURVE
b
MODULATED OUTPUT
d
500
DUOBINARY OUTPUT
e
t
c
π
0
Phase of electical field
a
electrical driving signal of MZ modulator
0
t

FIG.3

| INPUT DATA | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ENCODED DATA | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| MODULATED INTENSITY | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MODULATED PHASE | π | 0 | 0 | π | 0 | π | 0 | 0 | π | π | 0 | π |
| FILTER OUTPUT | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |

FIG.4A

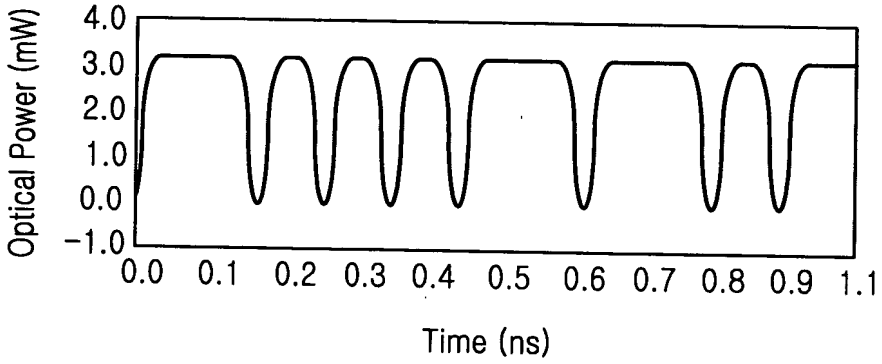


FIG.4B

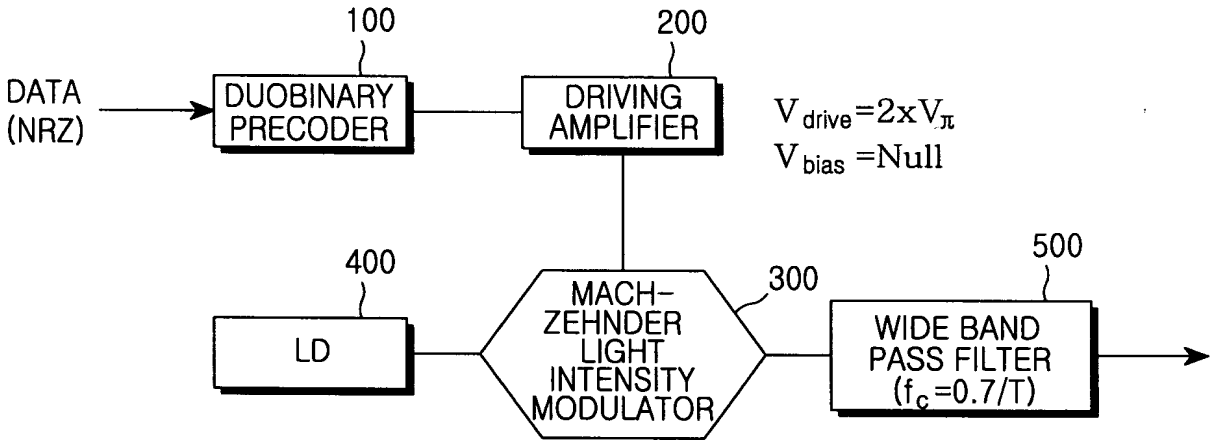
100
200
DATA
(NRZ)
DUOBINARY PRECODER
DRIVING AMPLIFIER
$V_{drive}=2xV_{\pi}$
$V_{bias}=Null$
400
300
500
LD
MACH-ZEHNDER LIGHT INTENSITY MODULATOR
WIDE BAND PASS FILTER
($f_c=0.7/T$)

FIG.5

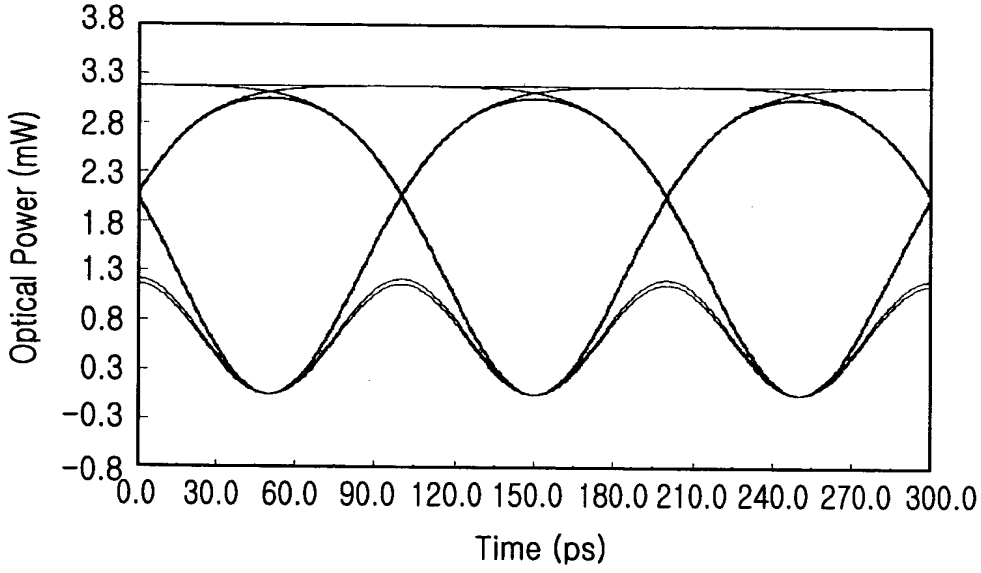
3.8
3.3
2.8
2.3
1.8
1.3
0.8
0.3
-0.3
-0.8
Optical Power (mW)
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0
Time (ps)

FIG.6

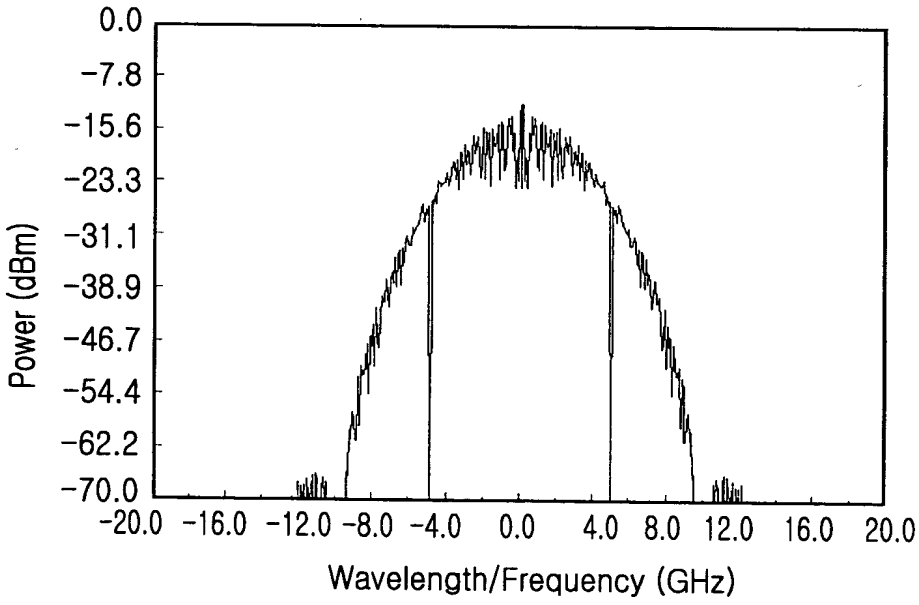
0.0
-7.8
-15.6
-23.3
-31.1
-38.9
-46.7
-54.4
-62.2
-70.0
Power (dBm)
-20.0 -16.0 -12.0 -8.0 -4.0 0.0 4.0 8.0 12.0 16.0 20.0
Wavelength/Frequency (GHz)

FIG.7

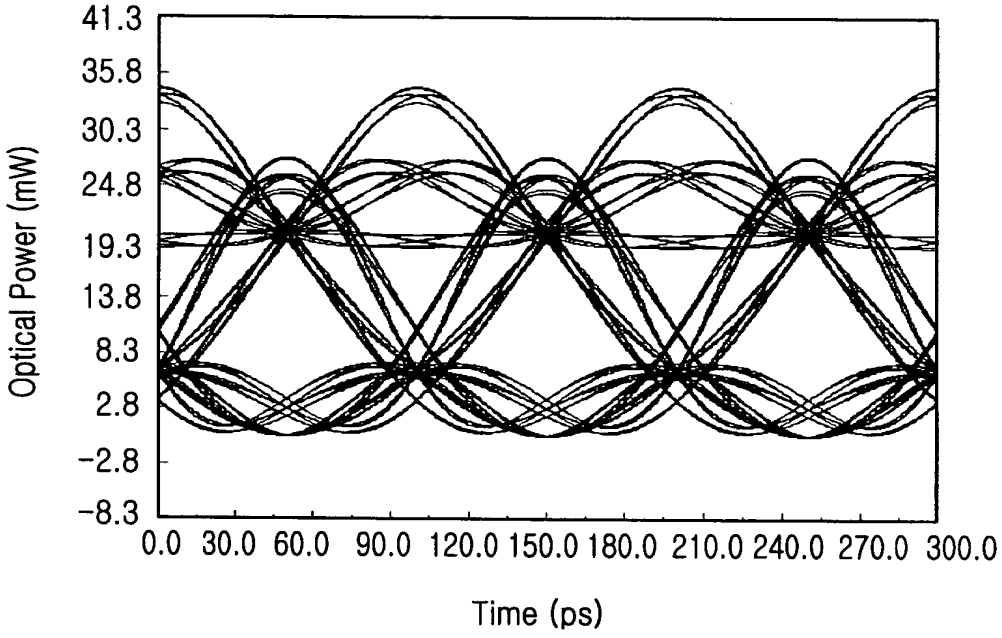
41.3
35.8
30.3
24.8
19.3
13.8
8.3
2.8
-2.8
-8.3
Optical Power (mW)
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0
Time (ps)

FIG.8